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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,143	12/13/2001	Andrew C. Alduino	42390.P11010	6618

7590

07/26/2004

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EXAMINER

HUGHES, DEANDRA M

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 07/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/020,143

Applicant(s)

ALDUINO ET AL.

Examiner

Deandra M Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date May 17, 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 32 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In particular, claim 32 depends upon claim 38. Claim 32 is a literal copy of claim 38. This appears to be a minor typographical error in which the applicant meant for claim 32 to depend upon claim 28 (not claim 38). Consequently, the Examiner has examined claim 32 as if it depended upon claim 28.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 24-25, 27-29, 31-35, 37-39, and 41-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Kasamatsu (US 6,288,833 filed Feb. 17, 2000).

With regard to claim 24, Kasamatsu discloses:

- a substrate (fig. 5, col. 3, line 32);

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- a waveguide embedded within said substrate (#13), wherein an optical signal may propagate through said waveguide (col. 3, line 41);
- at least two or more light sources (#19) disposed on a first side (side with pump lasers #19) of said substrate along a length of said waveguide to emit light into said waveguide in at least partially transverse (col. 3, line 35, 'width direction'; also waveguides 21 are partially transverse) to a direction of propagation of the optical signal, the light emitted from said at least two or more light sources to pump the optical signal (col. 3, line 33);
- a reflector (112) disposed on a second side (side emitting 114) of said substrate to reflect at least a portion of light emitted from said at least two or more light sources into said waveguide, the reflected light pump the optical signal.

With regard to claim 28, Kasamatsu discloses:

- a semiconductor substrate (col. 4, line 47 - silicon or quartz);
- a waveguide (#13) embedded within said semiconductor substrate through which an optical signal may propagate (col. 3, line 41);
- in a direction at least partially transverse to a direction of propagation of the optical signal (col. 3, line 35, 'width direction'; also waveguides 21 are partially transverse), the light emitted from said at least two or more semiconductor light sources to pump the optical signal (col. 3, line 33).

With regard to claims 25 and 29, the waveguide contains a rare-earth group ion (col. 3, line 33). Erbium (Er) is a well-known dopant for optical amplification. Further, Kasamatsu discloses Er as a rare-earth group ion (col. 4, line 66).

With regard to claims 27, 31, 37, and 41, 980nm and 1480nm are well-known wavelengths for pumping Er-doped fiber amplifiers in the 1.55 micron optical signal range. Further, these wavelengths are disclosed (e.g., col. 1, line 60).

With regard to claims 32, 38, and 42, the reflector and the substrate would inherently have a different refractive index. In particular, the mounting substance of the mirror would inherently have a different refractive index than that of the substrate.

With regard to claims 33-35 and 39, Kasamatsu discloses:

- a semiconductor substrate (col. 4, line 47 - silicon or quartz);
- a waveguide (#13) embedded within said semiconductor substrate through which an optical signal may propagate (col. 3, line 41);
- said waveguide being doped with erbium (col. 4, line 66);
- at least two or more semiconductor light sources (#19: each source is an array; col. 8, lines 10-16) disposed on a first side of said substrate (side with pump lasers #19) along a length of said waveguide to emit light into said waveguide, the light emitted from said at least two or more semiconductor light sources to pump the optical signal, wherein at least two of said at least two or more semiconductor light sources are disposed within a single light source substrate (the semiconductor laser bar is on a single substrate).

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 26, 30, 36, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasamatsu (US 6,288,833 filed Feb. 17, 2000) in view of Lange (US filed Feb. 16, 2001). Kasamatsu does not specifically disclose that the pump light sources are vertical cavity emitting lasers (VCSELs). However, Lange teaches transverse pumping (87) of a waveguide embedded in a substrate by a VCSEL (74; col. 5, line 52). It would have been obvious to one of ordinary skill in the art (e.g., an optical engineer) to use a VCSEL to pump the waveguide embedded in a substrate for the advantage of lower cost components, as is taught by Lange (col. 5, line 56).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Alduino, Ashby, Byren, and Kuksenkov disclose transverse pumping of optical amplifiers.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M Hughes whose telephone number is 703-306-4175. The examiner can normally be reached on M-F, 8:30am-5:00pm.

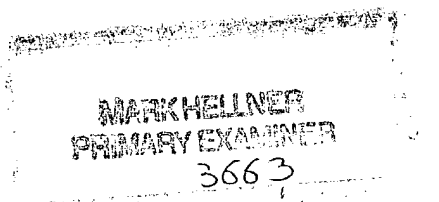
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H Tarcza can be reached on 703-306-4171. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DMH


MARK HELMER
PRIMARY EXAMINER
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